**Small Business Innovation Research/Small Business Tech Transfer**

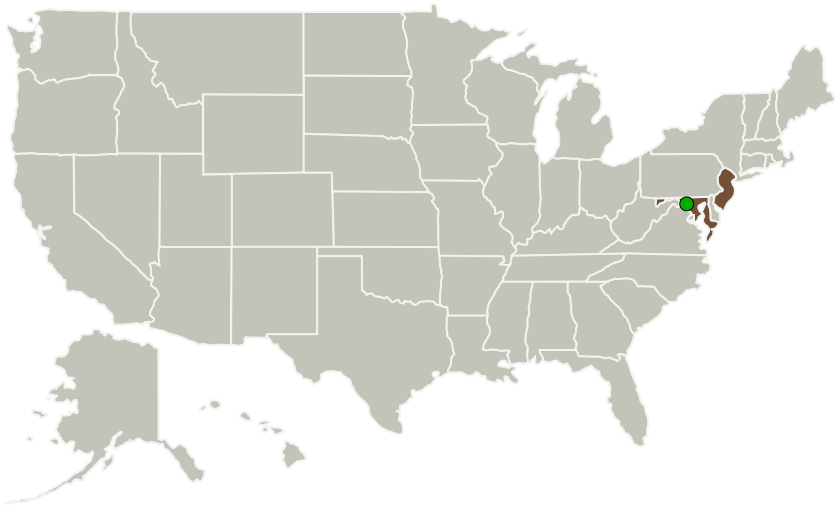
# ZnMgO Nanowire Based Detectors and Detector Arrays, Phase I

Completed Technology Project (2014 - 2014)

## Project Introduction

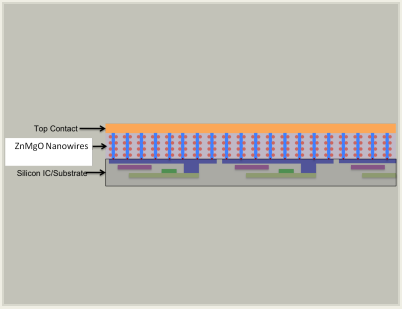
In this STTR program, Structured Materials Industries (SMI) and partners propose to develop an electrically contacted zinc magnesium oxide (ZnMgO) nanowire array for highly efficient UV focal plane arrays. The properties of ZnMgO make it a very promising material for optoelectronic devices. In particular, the wide bandgap (3.37 eV) and large exciton binding energy (60 meV), and the ability to fabricate stable, uniform ZnMgO nanowires make the material attractive as a sensor material.

## Primary U.S. Work Locations and Key Partners



| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| Structured Materials Industries, Inc. | Lead Organization | Industry | Piscataway, New Jersey |
| Goddard Space Flight Center(GSFC) | Supporting Organization | NASA Center | Greenbelt, Maryland |

| Primary U.S. Work Locations | |
|---|---|
| Maryland | New Jersey |




ZnMgO Nanowire Based Detectors and Detector Arrays Project Image

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## Project Transitions

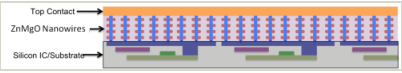
**June 2014:** Project Start

**December 2014:** Closed out

**Closeout Documentation:**

- Final Summary Chart*(https://techport.nasa.gov/file/140574)*

## Images




**Project Image**
ZnMgO Nanowire Based Detectors and Detector Arrays Project Image *(https://techport.nasa.gov/image/130600)*

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Structured Materials Industries, Inc.

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Nick Sbrockey

**Co-Investigator:**

Nick Sbrockey

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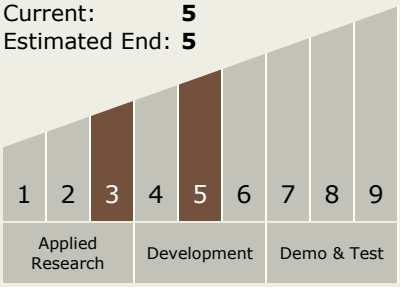
## Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**




## Technology Areas

**Primary:**

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System